INEEL V-3 Sludge, Inorganic Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aluminum	5470 D	NA	NA	NA	NA	
Antimony	17.9 B	UHC Treatment Standard	UHC	1.9	1.15 mg/L TCLP	Using 17.9 mg/kg, the theoretical leachate value is 0.895 mg/L .
Arsenic	21.4 U (0.0386), TCLP	5.0 (D004), UHC Treatment Standard	D004, UHC	1.4	5.0 mg/L TCLP	
Barium	184 1.8 mg/L TCLP	100 mg/l (D005), UHC Treatment Standard	D005, UHC	1.2	21 mg/L TCLP	
Beryllium	**29.7**	**UHC Treatment Standard**	**UHC**	**0.82**	**1.22 mg/L TCLP**	**Using 29.7 mg/kg, the theoretical leachate value is 1.485 mg/L which is above the nww treatment standard. Therefore it is a UHC .**
Boron	38.5	NA	NA	NA	NA	
Cadmium	**102 J 0.198 mg/L, TCLP**	**1.0 (D006), UHC**	**D006, UHC**	**0.69**	**0.11 mg/L TCLP**	**0.198 mg/L TCLP concentration is below the characteristic limit however it exceeds the nww treatment standard limit. Therefore, cadmium may be a UHC.**
Calcium	36800 D	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
D = Dilution Factor of 10.
Y = Laboratory defined flag.
E = Estimate value

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INEEL V-3 Sludge, Inorganic Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Chromium	**947 0.601 mg/L TCLP**	**5 (D007), UHC Treatment Standards**	**D007, UHC**	**2.77**	**0.60 mg/L TCLP**	**Using 0.601 mg/L concentration this waste is below the characteristic limit, however it exceeds the nww treatment standard slightly. Therefore, this constituent is a UHC.**
Cobalt	9.41	NA	NA	NA	NA	
Copper	699	NA	NA	NA	NA	
Iron	18900	NA	NA	NA	NA	
Lead	1890 0.0426 mg/L, TCLP	5.0 (D008), UHC Treatment Standard	D008, UHC	0.69	0.75 mg/L TCLP	
Magnesium	8480	NA	NA	NA	NA	
Manganese	8710 D	NA	NA	NA	NA	
Mercury	1390 Y E 0.003 mg/L, TCLP	0.2 (D009), UHC Treatment Standard	D009, UHC	0.15	0.025 mg/L TCLP	
Nickel	**563 J**	**UHC Treatment Standard**	**UHC**	**3.98**	**11 mg/L TCLP**	**Using 563 mg/kg, the theoretical leachate value is 28.15 mg/L which is above the nww treatment standard limt. This is a UHC.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
D = Dilution Factor of 10.
Y = Laboratory defined flag.
E = Estimate value

INEEL V-3 Sludge, Inorganic Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Potassium	5290 J	NA	NA	NA	NA	
Selenium	U (2.09) U (0.047) mg/L TCLP	1 (D010)	D010	0.82	5.7 mg/L TCLP	
Silicon	3960 J	NA	NA	NA	NA	
Silver	1310 J 0.016 mg/L, TCLP	5 (D011), UHC Treatment Standard	D011, UHC	0.43	0.14 mg/L TCLP	
Sodium	6470 J	NA	NA	NA	NA	
Thallium	U (2)	UHC Treatment Standard	UHC	1.4	0.2 mg/L TCLP	Using 2.0 mg/kg, the theoretical leachate value is 0.1 mg/L which is below the nww treatment standard limt.
Tin	60.3 B	NA	NA	NA	NA	
Vanadium	10.8	NA	NA	NA	NA	
Zinc	9730	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
D = Dilution Factor of 10.
Y = Laboratory defined flag.
E = Estimate value

INEEL V-3 Sludge, Miscellaneous Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bromide	U (10)	None	NA	NA	NA	
Chloride	64.3	None	NA	NA	NA	
Fluoride	U (5)	None	NA	NA	NA	
Nitrate	U (2)	None	NA	NA	NA	
Nitrite	U (4)	None	NA	NA	NA	
Phosphate	U (3)	None	NA	NA	NA	
Sulfate	332	None	NA	NA	NA	
Total Organic Carbon	937,000	< 1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
Total Halides	1320	NA	NA	NA	NA	
Total Suspended Solids	NA	<1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
pH	7.08-7.86	≤ 2 or ≥ 12.5	None	NA	NA	
Density	1.02					

U = Not Detected (Detection limit in parenthesis).
TOC = 937000 mg/kg = 93.7 %, which is > 1%. This sludge is considered a non-wastewater. (Note: This percentage of TOC is not consistant with organics detected in the sludge)

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INEEL V-3 Sludge, PCB Analysis

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable TSCA/RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aroclor-1016	U (19)		None	NA	NA	
Aroclor-1221	U (37)	NA	NA	NA	NA	
Aroclor-1232	U (19)	NA	NA	NA	NA	
Aroclor-1242	U (19)	NA	NA	NA	NA	
Aroclor-1248	U (19)	NA	NA	NA	NA	
Aroclor-1254	U (19)	NA	NA	NA	NA	
Aroclor-1260	400 D	NA	NA	NA	NA	
Total Concentration	400 D	50 mg/kg for TSCA, UHC Treatment Standard for RCRA	None	0.1	10	This waste is regulated under TSCA and it may be subject to the UHC treatment standard level. Therefore, this waste must be incinerated prior to disposal for purposes of PCBs.

U = Not Detected (Detection limit in parenthesis).
D = Dilution Factor of 20

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INEEL OU 1-10 Site TSF-18, Tank V-9
Preliminary Liquid Phase Chemical Characterization Summary

- The liquid phase of the waste associated with this tank is considered a wastewater for purposes of complying with the Land Disposal Restrictions, in that it contains <1% TOC and <1% TSS. This determination as well as the hazardous waste determination listed below is preliminary based on existing analytical data.

- **Hazardous Waste Determination:** Highest concentrations detected are reported.

The RCRA Waste codes that apply to this waste are as follows:

Constituent	Concentration Detected in Waste (mg/L)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for wastewater (mg/L)
Cadmium	1.9	1.0	D006	0.69
Mercury	0.563	0.2	D009	0.15
Benzene	ND @ 17	0.5	D018	10
Chloroform	ND @ 10	6.0	D022	0.046
1,2-Dichloroethane	ND@ 25	0.5	D028	0.21
1,1-Dichloroethene	ND @ 11	0.7	D029	0.025
Methylene Chloride	59.0	None (0.089 as a UHC)	UHC	0.089
Tetrachloroethene	ND @ 17	0.7	D039	0.056
1,1,1-Trichloroethane	58	None (0.054 as a UHC)	UHC	0.054
Trichloroethene	410	None (0.054 as a UHC)	F001	0.054
Lead	0.942	0.69	UHC	0.69
Nickel	13.8	3.98	UHC	3.98
3,3 Dichlorobenzidene (Dibenz (a,h) anthracene)	ND @ 0.066	0.055	UHC	0.055
2,4-Dimethylphenol	0.079	0.036	UHC	0.036

Constituent	Concentration Detected in Waste (mg/L)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for wastewater (mg/L)
Indeno (1,2,3-cd) pyrene	ND @ 0.036	0.0055	UHC	0.0055
2-Methylphenol (o-cresol)	0.830E	200 (0.11 as a UHC)	UHC	0.11
4-Methylphenol (p-cresol)	0.830E	200 (0.77 as a UHC)	UHC	0.77
Phenol	0.1	0.039	UHC	0.039

- UHC = Underlying Hazardous Constituent

  E = Concentration exceeded the calibration range of the instrument.
  ND = Not Detected

- The detection limit for two SVOCs exceeded the treatment standard, therefore it can not be determined if this constituent is present in the waste below the level requiring treatment. LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that the constituents are not present in the waste. However, since this waste will not be re-analyzed for these two constituents, these constituents are assumed to be present in the waste at the detection limit value.

- The detection limits for a majority of the VOCs were above the wastewater treatment standard as well as the characteristic limit for certain constituents. Again, as previously stated, LDR guidance suggests that in cases where detection limits are above either the characteristic limit or the treatment standard, the generator may use his/her knowledge of the waste, in lieu of analytical results, to certify that these constituents are not present in the waste. However, since this waste will not be re-analyzed for these constituents the following VOCs are also assumed to be present in the waste at the detection limit value (see attached tables for concentrations) and idaentified as underlying hazardous constituents (The above table identifies those VOCs with detection limits exceeding characteristic limits.): Acetone, Bromodichloromethane, Bromoform, Bromomethane, 2-Butanone, Carbon disulfide, Carbon Tetrachloride, Chlorobenzene, Chloroethane, Chloromethane, Dibromochloromethane, 1,3-Dichloroethane, trans-1,2-Dichloroethene, 1,2-Dichloropropane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, Ethylbenzene, 4-Methyl-2-pentanone, 1,1,2,2-Tetrachloroethane, Toluene, 1,1,2-Trichloroethane, Vinyl Chloride, and Xylene.

- Based on a review of the analytical data provided by INEEL, this waste is considered both a characteristic and a listed hazardous waste requiring treatment of the organic constituents followed-by stabilization of the ash for the inorganic constituents.

- **Recommendation:** The physical form or phase of the waste to be disposed should be the same form as described above.

  If this waste will not be treated on-site, the waste acceptance criteria of possible off-site treatment facilities should also be considered.

INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acetone	U (110)	Treatment standard limit if UHC	UHC	0.28	160	The 110 mg/L detection limit exceeds the ww treatment standard. Assuming the density of this liquid is equivalent to water, the 110 mg/L is below the nww treatment standard.
Benzene	U (17)	0.5 mg/l (D018) or treatment standard limit if UHC	D018 or UHC	0.14	10	The 17 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
Bromodichloromethane	U (12)	Treatment standard limit if UHC	UHC	0.35	15	The 12 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
Bromoform (Tribromomethane)	U (43)	Treatment standard limit if UHC	UHC	0.63	15	The 43 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
Bromomethane	U (7.8)	Treatment standard limit if UHC	UHC	0.11	15	The 7.8 mg/L detection limit exceeds the ww treatment standard. Assuming the density of this liquid is equivalent to water, the 7.8 mg/L is below the nww treatment standard.
2-Butanone (MEK)	U (56)	200 mg/l (D035) or treatment standard limit if UHC	D035 or UHC	0.28	36	The 56 mg/L detection limit exceeds both treatment standards, but is below the characteristic limit.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Carbon disulfide	U (13)	Treatment standard limit if UHC	UHC	3.8	4.8 mg/l	The 13 mg/L detection limit exceeds both treatment standards.
Carbon tetrachloride	U (11)	Treatment standard limit if UHC	UHC	0.057	6	The 11 mg/L detection limit exceeds both treatment standards.
Chlorobenzene	U (10)	100 mg/l (D021) or treatment standard limit if UHC	D021 or UHC	0.057	6	The 10 mg/L detection limit exceeds both treatment standards, but is below the characteristic limit.
Chloroethane	U (17)	Treatment standard limit if UHC	UHC	0.27	6	The 17 mg/L detection limit exceeds both treatment standards.
Chloroform	U (10)	6 mg/l (D022) or treatment standard limit if UHC	D022 or UHC	0.046	6	The 10 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
Chloromethane	U (3.7)	Treatment standard limit if UHC	UHC	0.19	30	The 3.7 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
Dibromochloromethane (Chlorodibromomethane)	U (15)	Treatment standard limit if UHC	UHC	0.057	15	The 15 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
1,1-Dichloroethane	U (3.8)	Treatment standard limit if UHC	UHC	0.059	6	The 3.8 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,2-Dichloroethane	U (25)	0.5 mg/l (D028), or treatment standard limit if UHC	D028 or UHC	0.21	6	The 25 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
1,1-Dichloroethene	U (11)	0.7 mg/l (D029) or treatment standard limit if UHC	D029 or UHC	0.025	6	The 11 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
1,2-Dichloroethene (cis-Dichloroethene)	U (9.5)	NA	NA	NA	NA	
trans-1,2-Dichloroethene	U (7.5)	Treatment standard limit if UHC	UHC	0.054	30	The 7.5 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
1,2-Dichloropropane	U (18)	Treatment standard limit if UHC	UHC	0.85	18	The 718 mg/L detection limit exceeds the ww treatment standards, but is at the nww treatment standard.
cis-1,3-Dichloropropene	U (14)	Treatment standard limit if UHC	UHC	0.036	18	The 14 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
trans-1,3-Dichloropropene	U (19)	Treatment standard limit if UHC	UHC	0.036	18	The 19 mg/L detection limit exceeds both treatment standards.
Ethylbenzene	U (11)	Treatment standard limit if UHC	UHC	0.057	10	The 11 mg/L detection limit exceeds both treatment standards.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
2-Hexanone (Methyl n-butyl ketone)	U (38)	NA	NA	NA	NA	
4-Methyl-2-pentanone (MIK)	U (14)	Treatment standard limit if UHC	UHC	0.14	33	The 14 mg/L detection limit exceeds the ww treatment standards, but is below the nww treatment standard.
Methylene chloride	**59J**	**Treatment standard limit if UHC**	**UHC**	**0.089**	**30**	**The estimated value of 59 mg/L exceeds both treatment standards. Therefore, the waste must be treated prior to disposal.**
Styrene	U (17)	NA	NA	NA	NA	
1,1,2,2-Tetrachloroethane	U (11)	Treatment standard limit if UHC	UHC	0.057	6	The 11 mg/L detection limit exceeds both treatment standards.
Tetrachloroethene	U (17)	0.7 mg/l (D039) or treatment standard limit if UHC	D039 or UHC	0.056	6	The 17 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
Toluene	U (15)	Treatment standard limit if UHC	UHC	0.08	10	The 15 mg/L detection limit exceeds both treatment standards.
1,1,1-Trichloroethane	**58 J**	**Treatment standard limit if UHC**	**UHC**	**0.054**	**6**	**58 mg/L exceeds both treatment standards. Therefore, this waste must be treated prior to disposal.**
1,1,2-Trichloroethane	U (10)	Treatment standard limit if UHC	UHC	0.054	6	The 10 mg/L detection limit exceeds both treatment standards.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Trichloroethene	**410**	**None if listed**	**F001**	**0.054**	**6**	**410 mg/L exceeds the characteristic limit as well as both treatment standards. This waste must be treated prior to disposal.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 VOC Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Constituents	**Concentration mg/L**	**Applicable Regulatory Limit**	**Applicable RCRA Waste Code**	**LDR Treatment Standard for wastewater in mg/l**	**LDR Treatment Standard for non-wastewater in mg/kg**	**Comments**
Vinyl chloride	U (13)	0.2 mg/l (D043), orTreatment standard limit if UHC	D043 or UHC	0.27	6	The 13 mg/L detection limit exceeds the characteristic limit as well as both treatment standards.
Xylene (ortho)	U (14)	NA	NA	NA	NA	
Xylene (total meta and para)	U (19)	Treatment standard limit if UHC	UHC	0.32	30	The 19 mg/L detection limit exceeds both the ww standards but is below the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acenaphthene	U (6)	UHC Treatment Standard	UHC	0.059	3.4	
Acenaphthylene	U (7)	UHC Treatment Standard	UHC	0.059	3.4	
Anthracene	U (5)	UHC Treatment Standard	UHC	0.059	3.4	
Benzo (a) anthracene	U (8)	UHC Treatment Standard	UHC	0.059	3.4	
Benzo (a) pyrene	U (1)	UHC Treatment Standard	UHC	0.061	3.4	
Benzo (b) fluoranthene	U (7)	UHC Treatment Standard	UHC	0.11	6.8	
Benzo (g,h,I) perylene	U (3)	UHC Treatment Standard	UHC	0.0055	1.8	
Benzo (k) fluoranthene	U (6)	UHC Treatment Standard	UHC	0.11	6.8	
Butylbenzylphthalate	U (8)	UHC Treatment Standard	UHC	0.017	28	
Bis (2-chloroethoxy)methane	U (8)	UHC Treatment Standard	UHC	0.036	7.2	
Bis (2-chloroethyl)ether	U (7)	UHC Treatment Standard	UHC	0.033	6	
Bis (2-chloroisopropyl) ether	U (6)	UHC Treatment Standard	UHC	0.055	7.2	
Bis (2-ethylhexyl) phthalate	38	UHC Treatment Standard	UHC	0.28	28	Concentration is below both treatment standards, therefore it is not a UHC.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

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INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Bromophenyl-phenylether	U (7)	UHC Treatment Standard	UHC	0.055	15	
Carbozole (or Carbazole)	U (10)	None	NA	NA	NA	
Chrysene	U (8)	UHC Treatment Standard	UHC	0.059	3.4	
4-Chloroaniline (p-chloroaniline)	U (27)	UHC Treatment Standard	UHC	0.46	16	
4-Chloro-3-Methylphenol (p-chloro-m-cresol)	U (8)	UHC Treatment Standard	UHC	0.018	14	
2-Chloronaphthalene	U (10)	UHC Treatment Standard	UHC	0.055	5.6	
4-Chlorophenyl-phenylether	U (7)	None	NA	NA	NA	
2-Chlorophenol	U (6)	UHC Treatment Standard	UHC	0.044	5.7	
Dibenz(a,h)anthracene	U (5)	UHC Treatment Standard	UHC	0.055	8.2	
Dibenzofuran	U (4)	None	NA	NA	NA	
1,2-Dichlorobenzene (o-dichlorobenzene)	**210E**	**UHC Treatment Standard**	**UHC**	**0.088**	**6**	**Waste may be F-listed and the concentration is above the wastewater treatment standard.**
1,3-Dichlorobenzene (m-dichlorobenzene)	U (6)	UHC Treatment Standard	UHC	0.036	6	
1,4-Dichlorobenzene (p-dichlorobenzene)	49	7.5 (D027), UHC Treatment Standard	D027, UHC	0.09	6	Concentration is below both treatment standards, therefore it is not a UHC. Concentration is also below the characteristic level.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

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INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
3,3-Dichlorobenzidine (Dibenz (a,h) anthracene)	U (66)	UHC Treatment Standard	UHC	0.055	8.2	Detection Limit is above the wastewater treatment standard.
2,4-Dichlorophenol	U (8)	UHC Treatment Standard	UHC	0.044	14	
Diethylphthalate	U (8)	UHC Treatment Standard	UHC	0.2	28	
2,4-Dimethylphenol	79	UHC Treatment Standard	UHC	0.036	14	
Dimethylphthalate	U (7)	UHC Treatment Standard	UHC	0.047	28	
Di-n-butylphthalate	U (3)	UHC Treatment Standard	UHC	0.057	28	
Di-n-octylphthalate	6J	UHC Treatment Standard	UHC	0.017	28	
4,6-Dinitro-2-methylphenol	190E	None	NA	NA	NA	
2,4-Dinitrophenol	U (27)	UHC Treatment Standard	UHC	0.12	160	
2,4-Dinitrotoluene	U (10)	UHC Treatment Standard	UHC	0.32	140	
2,6-Dinitrotoluene	U (8)	UHC Treatment Standard	UHC	0.55	28	
Fluoranthene	U (8)	UHC Treatment Standard	UHC	0.068	3.4	
Fluorene	U (5)	UHC Treatment Standard	UHC	0.059	3.4	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

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INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Hexachlorobenzene	U (7)	0.13 (D032), UHC Treatment Standard	D032, UHC	0.055	10	
Hexachlorobutadiene (Hexachloro-1,3-butadiene	U (10)	0.5 (D033)UHC Treatment Standard	D033, UHC	0.055	5.6	
Hexachlorocyclopentadiene	U (13)	UHC Treatment Standard	UHC	0.057	2.4	
Hexachloroethane	U (8)	UHC Treatment Standard	UHC	0.055	30	
Indeno (1,2,3-cd) pyrene	**U (36)**	**UHC Treatment Standard**	**UHC**	**0.0055**	**3.4**	**Detection Limit is above the wastewater treatment standard.**
Isophorone	U (7)	None	NA	NA	NA	
2-Methylnaphthalene	U (14)	None	NA	NA	NA	
2-Methylphenol (o-cresol)	**830 E**	**200 mg/L, UHC Treatment Standard**	**D023, UHC**	**0.11**	**5.6**	**Waste is below the characteristic limit, but exceeds the ww treatment standard. Therefore it is a UHC.**
4-Methylphenol (p-cresol)	**830E**	**200 mg/L, UHC Treatment Standard**	**D025, UHC**	**0.77**	**5.6**	**Waste is below the characteristic limit, but exceeds the ww treatment standard. Therefore it is a UHC.**
Naphthalene	U (8)	UHC Treatment Standard	UHC	0.059	5.6	
2-Nitroaniline (o-nitroaniline)	U (6)	UHC Treatment Standard	UHC	0.27	14	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

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INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
3-Nitroaniline (m-nitroaniline)	U (17)	None	NA	NA	NA	
4-Nitroaniline (p-nitroaniline)	U (4)	UHC Treatment Standard	UHC	0.028	28	
Nitrobenzene	U (9)	2.0 (D036) or UHC Treatment Standard	D036 or UHC	0.068	14	
2-Nitrophenol (o-nitrophenol)	U (7)	UHC Treatment Standard	UHC	0.028	13	
4-Nitrophenol (p-nitrophenol)	37	UHC Treatment Standard	UHC	0.12	29	
N-nitroso-dimethylamine	U (11)	UHC Treatment Standard	UHC	0.4	2.3	
N-nitroso-di-n-propylamine (Di-n-propylnitrosamine)	U (13)	UHC Treatment Standard	UHC	0.4	14	
N-nitrosodiphenylamine (Diphenylnitrosamine)	U (10)	UHC Treatment Standard	UHC	0.92	13	
Pentachlorophenol	U (13)	UHC Treatment Standard	UHC	0.089	7.4	
Phenanthrene	U (6)	UHC Treatment Standard	UHC	0.059	5.6	
Phenol	**100E**	**UHC Treatment Standard**	**UHC**	**0.039**	**6.2**	**Concentration is above for the wastewater treatment standards.**
Pyrene	U (12)	UHC Treatment Standard	UHC	0.067	8.2	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

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INEEL V-9 SVOC Analysis on liquid phase.

Constituents	Concentration ug/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Pyridine	U (10)	5.0 (D038) or UHC Treatment Standard	D038 or UHC	0.014	16	
Tributylphosphate	190E	None	NA	NA	NA	
1,2,4-Trichlorobenzene	U (7)	UHC Treatment Standard	UHC	0.055	19	
2,4,5-Trichorophenol	U (17)	44 (D041), UHC Treatment Standard	D041, UHC	0.18	7.4	
2,4,6-Trichlorophenol	U (10)	2 (D042), UHC Treatment Standard	D042, UHC	0.035	7.4	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
E = Concentration exceeded the calibration range of the instrument.

INEEL V-9 Inorganic Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aluminum	U (0.236)	NA	NA	NA	NA	
Antimony	U (0.162)	UHC Treatment Standard	UHC	1.9	1.15 mg/L TCLP	
Arsenic	U (0.232)	5.0 (D004), UHC Treatment Standard	D004, UHC	1.4	5.0 mg/L TCLP	
Barium	1.02	100 mg/l (D005), UHC Treatment Standard	D005, UHC	1.2	21 mg/L TCLP	
Beryllium	0.065	UHC Treatment Standard	UHC	0.82	1.22 mg/L TCLP	Concentration is below both treatment standards.
Boron	37.6	NA	NA	NA	NA	
Cadmium	**1.9**	**1.0 (D006), UHC**	**D006, UHC**	**0.69**	**0.11 mg/L TCLP**	**Concentration exceeds the characteristic limit and both treatment standards.**
Calcium	90.6	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

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INEEL V-9 Inorganic Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Chromium	1.46	5 (D007), UHC Treatment Standards	D007, UHC	2.77	0.60 mg/L TCLP	UHC for Non-wastewater
Cobalt	0.116 B	NA	NA	NA	NA	
Copper	2.98	NA	NA	NA	NA	
Iron	17.9	NA	NA	NA	NA	
Lead	**0.942**	**5.0 (D008), UHC Treatment Standard**	**D008, UHC**	**0.69**	**0.75 mg/L TCLP**	**Concentration exceeds both treatment standards therefore it is a UHC.**
Magnesium	208	NA	NA	NA	NA	
Manganese	23.5	NA	NA	NA	NA	
Mercury	**0.563**	**0.2 (D009), UHC Treatment Standard**	**D009, UHC**	**0.15**	**0.025 mg/L TCLP**	**Mercury exceeds the characteristic level, however a total concentration needs to be determined to determine appropriate nww treatment standard. Currently exceeds the ww treatment standard.**
Nickel	**13.8**	**UHC Treatment Standard**	**UHC**	**3.98**	**11 mg/L TCLP**	**Concentration exceeds both treatment standards therefore it is a UHC.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

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INEEL V-9 Inorganic Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Potassium	8340	NA	NA	NA	NA	
Selenium	U (0.234)	1 (D010)	D010	0.82	5.7 mg/L TCLP	
Silicon	25 NE	NA	NA	NA	NA	
Silver	U (0.0315)	5 (D011), UHC Treatment Standard	D011, UHC	0.43	0.14 mg/L TCLP	
Sodium	3150	NA	NA	NA	NA	
Thallium	U (0.370)	UHC Treatment Standard	UHC	1.4	0.2 mg/L TCLP	The estimated value of 59 mg/L exceeds both treatment standards. Therefore, the waste must be treated prior to disposal.
Tin	U (0.116)	NA	NA	NA	NA	
Vanadium	U (0.022)	NA	NA	NA	NA	
Zinc	18.2	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

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INEEL V-9 Miscellaneous Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bromide	0.0592	None	NA	NA	NA	
Chloride	10.9	None	NA	NA	NA	
Fluoride	0.00144 B	None	NA	NA	NA	
Nitrate	0.0632	None	NA	NA	NA	
Nitrite	U (0.11)	None	NA	NA	NA	
Phosphate	0.00242 B	None	NA	NA	NA	
Sulfate	0.29	None	NA	NA	NA	
Total Organic Carbon	3.06	< 1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
Total Halides	9.38	NA	NA	NA	NA	
Total Suspended Solids	1.59	<1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
pH	7.89	≤ 2 or ≥ 12.5	None	NA	NA	

U = Not Detected (Detection limit in parenthesis).
B = Not defined in INEEL.
TOC = 3.06 mg/L = 3.06E-4 %, which is < 1%.TSS = 1.59 mg/L = 1.59 E-4% which is < 1%. Therefore, liquid phase is considered a wastewater.

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INEEL V-9 PCB Analysis on liquid phase.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable TSCA/RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aroclor-1016	U (0.0054)		None	NA	NA	
Aroclor-1221	U (0.0054)	NA	NA	NA	NA	
Aroclor-1232	U (0.0054)	NA	NA	NA	NA	
Aroclor-1242	U (0.0054)	NA	NA	NA	NA	
Aroclor-1248	U (0.0054)	NA	NA	NA	NA	
Aroclor-1254	U (0.090)	NA	NA	NA	NA	
Aroclor-1260	0.036 J	NA	NA	NA	NA	
Total Concentration	0.036 J	50 mg/kg for TSCA, UHC Treatment Standard for RCRA	None	0.1	10	This waste is not regulated under TSCA and it is below the UHC treatment standard level. Therefore, no PCB treatment is required prior to disposal.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL OU 1-10 Site TSF-18, Tank V-9
Preliminary Liquid Phase Chemical Characterization Summary

- The liquid phase of the waste associated with this tank is considered a wastewater for purposes of complying with the Land Disposal Restrictions, in that it contains <1% TOC and <1% TSS. This determination as well as the hazardous waste determination listed below is preliminary based on existing analytical data.

- **Hazardous Waste Determination:** Highest concentrations detected are reported.

The RCRA Waste codes that apply to this waste are as follows:

Constituent	Concentration Detected in Waste (mg/L)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for wastewater (mg/L)
Cadmium	1.9	1.0	D006	0.69
Mercury	0.563	0.2	D009	0.15
Benzene	ND @ 17	0.5	D018	10
Chloroform	ND @ 10	6.0	D022	0.046
1,2-Dichloroethane	ND@ 25	0.5	D028	0.21
1,1-Dichloroethene	ND @ 11	0.7	D029	0.025
Methylene Chloride	59.0	None (0.089 as a UHC)	UHC	0.089
Tetrachloroethene	ND @ 17	0.7	D039	0.056
1,1,1-Trichloroethane	58	None (0.054 as a UHC)	UHC	0.054
Trichloroethene	410	None (0.054 as a UHC)	F001	0.054
Lead	0.942	0.69	UHC	0.69
Nickel	13.8	3.98	UHC	3.98
3,3 Dichlorobenzidene (Dibenz (a,h) anthracene)	ND @ 0.066	0.055	UHC	0.055
2,4-Dimethylphenol	0.079	0.036	UHC	0.036

Constituent	Concentration Detected in Waste (mg/L)	Regulatory Limit (mg/L)	Applicable Waste Code	LDR Treatment Standard for wastewater (mg/L)
Indeno (1,2,3-cd) pyrene	ND @ 0.036	0.0055	UHC	0.0055
2-Methylphenol (o-cresol)	0.830E	200 (0.11 as a UHC)	UHC	0.11
4-Methylphenol (p-cresol)	0.830E	200 (0.77 as a UHC)	UHC	0.77
Phenol	0.1	0.039	UHC	0.039

- UHC = Underlying Hazardous Constituent

  E = Concentration exceeded the calibration range of the instrument.
  ND = Not Detected

- The detection limit for two SVOCs exceeded the treatment standard, therefore it can not be determined if this constituent is present in the waste below the level requiring treatment. LDR guidance suggests that in cases where detection limits are above either the characteristic limit or treatment standards, the generator may use his knowledge of the waste, in lieu of analytical results, to certify that the constituents are not present in the waste. However, since this waste will not be re-analyzed for these two constituents, these constituents are assumed to be present in the waste at the detection limit value.

- The detection limits for a majority of the VOCs were above the wastewater treatment standard as well as the characteristic limit for certain constituents. Again, as previously stated, LDR guidance suggests that in cases where detection limits are above either the characteristic limit or the treatment standard, the generator may use his/her knowledge of the waste, in lieu of analytical results, to certify that these constituents are not present in the waste. However, since this waste will not be re-analyzed for these constituents the following VOCs are also assumed to be present in the waste at the detection limit value (see attached tables for concentrations) and idaentified as underlying hazardous constituents (The above table identifies those VOCs with detection limits exceeding characteristic limits.): Acetone, Bromodichloromethane, Bromoform, Bromomethane, 2-Butanone, Carbon disulfide, Carbon Tetrachloride, Chlorobenzene, Chloroethane, Chloromethane, Dibromochloromethane, 1,3-Dichloroethane, trans-1,2-Dichloroethene, 1,2-Dichloropropane, cis-1,3-Dichloropropene, trans-1,3-Dichloropropene, Ethylbenzene, 4-Methyl-2-pentanone, 1,1,2,2-Tetrachloroethane, Toluene, 1,1,2-Trichloroethane, Vinyl Chloride, and Xylene.

- Based on a review of the analytical data provided by INEEL, this waste is considered both a characteristic and a listed hazardous waste requiring treatment of the organic constituents followed-by stabilization of the ash for the inorganic constituents.

- **Recommendation:** The physical form or phase of the waste to be disposed should be the same form as described above.

  If this waste will not be treated on-site, the waste acceptance criteria of possible off-site treatment facilities should also be considered.

INEEL V-9 VOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acetone	U (1400) D	Treatment standard limit if UHC	UHC	0.28	160	The 1400 mg/kg detection limit exceeds the nww treatment standard.
Benzene	U (250) D	0.5 mg/l (D018) or treatment standard limit if UHC	D018 or UHC	0.14	10	The 250 mg/kg detection limit exceeds the nww treatment standard. Using 250 mg/kg, the theoretical leachate value would be 12.5 mg/L which also exceeds the ww treatment standard and the characteristic limit.
Bromodichloromethane	U (120) D	Treatment standard limit if UHC	UHC	0.35	15	The 120 mg/kg detection limit exceeds the nww treatment standard.
Bromoform (Tribromomethane)	U (500) D	Treatment standard limit if UHC	UHC	0.63	15	The 500 mg/kg detection limit exceeds the nww treatment standard.
Bromomethane	**140 D J**	**Treatment standard limit if UHC**	**UHC**	**0.11**	**15**	**The 140 mg/kg concentration exceeds the nww treatment standard. Therefore, this constituent is a UHC.**
2-Butanone (MEK)	U (750)	200 mg/l (D035) or treatment standard limit if UHC	D035 or UHC	0.28	36	The 750 mg/kg detection limit exceeds the nww treatment standard. Using 750 mg/kg, the theoretical leachate value would be 37.5 mg/L which also exceeds the ww treatment standard, but it is below the characteristic limit of 200 mg/L.
Carbon disulfide	U (120) D	Treatment standard limit if UHC	UHC	3.8	4.8 mg/L	Using 120 mg/kg, the theoretical leachate value would be 6 mg/L which exceeds both treatment standards.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000.

INEEL V-9 VOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Carbon tetrachloride	U (120) D	Treatment standard limit if UHC	UHC	0.057	6	The 120 mg/kg detection limit exceeds the nww treatment standard.
Chlorobenzene	U (120) D	100 mg/l (D021) or treatment standard limit if UHC	D021 or UHC	0.057	6	The 120 mg/kg detection limit exceeds the nww treatment standard. Using 120 mg/kg, the theoretical leachate value would be 6 mg/L which also exceeds the ww treatment standard but it is below the characteristic limit.
Chloroethane	U (250) D	Treatment standard limit if UHC	UHC	0.27	6	The 250 mg/kg detection limit exceeds the nww treatment standard.
Chloroform	U (120) D	6 mg/l (D022) or treatment standard limit if UHC	D022 or UHC	0.046	6	The 120 mg/kg detection limit exceeds the nww treatment standard. Using 120 mg/kg, the theoretical leachate value would be 6 mg/L which also exceeds the ww treatment standard. This detection limit is also at the characteristic limit, therefore it is uncertain if this waste is characteristic.
Chloromethane	**80 DJ**	**Treatment standard limit if UHC**	**UHC**	**0.19**	**30**	**The 80 mg/kg concentration exceeds the nww treatment standard. Therefore, this constituent is a UHC.**
Dibromochloromethane (Chlorodibromomethane)	U (120) D	Treatment standard limit if UHC	UHC	0.057	15	The 120 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000.

INEEL V-9 VOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,1-Dichloroethane	U (50) D	Treatment standard limit if UHC	UHC	0.059	6	The 50 mg/kg detection limit exceeds the nww treatment standard.
1,2-Dichloroethane	U (380)	0.5 mg/l (D028), or treatment standard limit if UHC	D028 or UHC	0.21	6	The 380 mg/kg detection limit exceeds the nww treatment standard. Using 380 mg/kg, the theoretical leachate value is 19 mg/L which also exceeds the ww treatment standard and the characteristic limit.
1,1-Dichloroethene	U (120) D	0.7 mg/l (D029) or treatment standard limit if UHC	D029 or UHC	0.025	6	The 120 mg/kg detection limit exceeds the nww treatment standard. Using 120 mg/kg, the theoretical leachate value would be 6 mg/L which also exceeds the ww treatment standard and the characteristic limit.
1,2-Dichloroethene (cis-Dichloroethene)	U (110) D	NA	NA	NA	NA	
trans-1,2-Dichloroethene	U (88) D	Treatment standard limit if UHC	UHC	0.054	30	The 88 mg/kg detection limit exceeds the nww treatment standard.
1,2-Dichloropropane	U (250) D	Treatment standard limit if UHC	UHC	0.85	18	The 250 mg/kg detection limit exceeds the nww treatment standard.
cis-1,3-Dichloropropene	U (120) D	Treatment standard limit if UHC	UHC	0.036	18	The 120 mg/kg detection limit exceeds the nww treatment standard. Using 120 mg/kg, the theoretical leachate value would be 6 mg/L which also exceeds the ww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000.

INEEL V-9 VOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
trans-1,3-Dichloropropene	U (250) D	Treatment standard limit if UHC	UHC	0.036	18	The 250 mg/kg detection limit exceeds the nww treatment standard.
Ethylbenzene	U (120) D	Treatment standard limit if UHC	UHC	0.057	10	The 120 mg/kg detection limit exceeds the nww treatment standard.
2-Hexanone (Methyl n-butyl ketone)	U (500) D	NA	NA	NA	NA	
4-Methyl-2-pentanone (MIK)	U (120) D	Treatment standard limit if UHC	UHC	0.14	33	The 120 mg/kg detection limit exceeds the nww treatment standard.
Methylene chloride	U (250) D	Treatment standard limit if UHC	UHC	0.089	30	The 250 mg/kg detection limit exceeds the nww treatment standard.
Styrene	U (250) D	NA	NA	NA	NA	
1,1,2,2-Tetrachloroethane	U (120) D	Treatment standard limit if UHC	UHC	0.057	6	The 120 mg/kg detection limit exceeds the nww treatment standard.
Tetrachloroethene	**600**	**0.7 mg/l (D039) or treatment standard limit if UHC**	**D039 or UHC**	**0.056**	**6**	**The 600 mg/kg concentration exceeds the nww treatment standard. Using 600 mg/kg, the theoretical leachate value would be 30 mg/L which also exceeds the ww treatment standard and the characteristic limit.**
Toluene	U (250) D	Treatment standard limit if UHC	UHC	0.08	10	The 250 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000.

INEEL V-9 VOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,1,1-Trichloroethane	**2600 D**	**Treatment standard limit if UHC**	**UHC**	**0.054**	**6**	**The 2600 mg/kg concentration exceeds the nww treatment standard.**
1,1,2-Trichloroethane	U (120) D	Treatment standard limit if UHC	UHC	0.054	6	The 120 mg/kg detection limit exceeds the nww treatment standard.
Trichloroethene	**22000**	**None if listed**	**F001**	**0.054**	**6**	**The 22000 mg/kg concentration exceeds the nww treatment standard. Using 22000 mg/kg, the theoretical leachate value would be 1100 mg/L which also exceeds the ww treatment standard.**
Vinyl chloride	U (120) D	0.2 mg/l (D043), orTreatment standard limit if UHC	D043 or UHC	0.27	6	The 120 mg/kg detection limit exceeds the nww treatment standard. Using 120 mg/kg, the theoretical leachate value would be 6 mg/L which also exceeds the ww treatment standard and the characterisitic limit.
Xylene (ortho)	U (120) D	NA	NA	NA	NA	
Xylene (total meta and para)	U (250) D	Treatment standard limit if UHC	UHC	0.32	30	The 250 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
D = Dilution factor of 10000.

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INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Acenaphthene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Acenaphthylene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Anthracene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Benzo (a) anthracene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Benzo (a) pyrene	U (130)	UHC Treatment Standard	UHC	0.061	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Benzo (b) fluoranthene	U (130)	UHC Treatment Standard	UHC	0.11	6.8	130 mg/kg detection limit exceeds the nww treatment standard.
Benzo (g,h,I) perylene	U (130)	UHC Treatment Standard	UHC	0.0055	1.8	130 mg/kg detection limit exceeds the nww treatment standard.
Benzo (k) fluoranthene	U (130)	UHC Treatment Standard	UHC	0.11	6.8	130 mg/kg detection limit exceeds the nww treatment standard.
Butylbenzylphthalate	U (130)	UHC Treatment Standard	UHC	0.017	28	130 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroethoxy)methane	U (130)	UHC Treatment Standard	UHC	0.036	7.2	130 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroethyl)ether	U (130)	UHC Treatment Standard	UHC	0.033	6	130 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-chloroisopropyl) ether	U (130)	UHC Treatment Standard	UHC	0.055	7.2	130 mg/kg detection limit exceeds the nww treatment standard.
Bis (2-ethylhexyl) phthalate	**1100**	**UHC Treatment Standard**	**UHC**	**0.28**	**28**	**1100 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Bromophenyl-phenylether	U (130)	UHC Treatment Standard	UHC	0.055	15	130 mg/kg detection limit exceeds the nww treatment standard.
Carbozole (or Carbazole)	U (130)	None	NA	NA	NA	
Chrysene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
4-Chloroaniline (p-chloroaniline)	U (130)	UHC Treatment Standard	UHC	0.46	16	130 mg/kg detection limit exceeds the nww treatment standard.
4-Chloro-3-Methylphenol (p-chloro-m-cresol)	U (130)	UHC Treatment Standard	UHC	0.018	14	130 mg/kg detection limit exceeds the nww treatment standard.
2-Chloronaphthalene	U (130)	UHC Treatment Standard	UHC	0.055	5.6	130 mg/kg detection limit exceeds the nww treatment standard.
4-Chlorophenyl-phenylether	U (130)	None	NA	NA	NA	
2-Chlorophenol	U (130)	UHC Treatment Standard	UHC	0.044	5.7	130 mg/kg detection limit exceeds the nww treatment standard.
Dibenz(a,h)anthracene	U (130)	UHC Treatment Standard	UHC	0.055	8.2	130 mg/kg detection limit exceeds the nww treatment standard.
Dibenzofuran	U (130)	None	NA	NA	NA	
1,2-Dichlorobenzene (o-dichlorobenzene)	**350**	**UHC Treatment Standard**	**UHC**	**0.088**	**6**	**350 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC or an F-listed constituent.**
1,3-Dichlorobenzene (m-dichlorobenzene)	**16 J**	**UHC Treatment Standard**	**UHC**	**0.036**	**6**	**16 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
1,4-Dichlorobenzene (p-dichlorobenzene)	**90 J**	**7.5 (D027), UHC Treatment Standard**	**D027, UHC**	**0.09**	**6**	**90 mg/kg concentration exceeds the nww treatment standard. Using 90 mg/kg, the theoretical leachate value is 4.5 mg/L which is below the characterisitic limit. However, this constituent is a UHC.**
3,3-Dichlorobenzidine (Dibenz (a,h) anthracene)	U (130)	UHC Treatment Standard	UHC	0.055	8.2	130 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dichlorophenol	U (130)	UHC Treatment Standard	UHC	0.044	14	130 mg/kg detection limit exceeds the nww treatment standard.
Diethylphthalate	U (130)	UHC Treatment Standard	UHC	0.2	28	130 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dimethylphenol	**270**	**UHC Treatment Standard**	**UHC**	**0.036**	**14**	**270 mg/kg concentration exceeds the nww treatment standard. Therefore this constituent is a UHC.**
Dimethylphthalate	U (130)	UHC Treatment Standard	UHC	0.047	28	130 mg/kg detection limit exceeds the nww treatment standard.
Di-n-butylphthalate	15 J	UHC Treatment Standard	UHC	0.057	28	15 mg/kg concentration is below the nww treatment standard.
Di-n-octylphthalate	U (130)	UHC Treatment Standard	UHC	0.017	28	130 mg/kg detection limit exceeds the nww treatment standard.
4,6-Dinitro-2-methylphenol	U (670)	None	NA	NA	NA	
2,4-Dinitrophenol	U (670)	UHC Treatment Standard	UHC	0.12	160	670 mg/kg detection limit exceeds the nww treatment standard.
2,4-Dinitrotoluene	U (130)	UHC Treatment Standard	UHC	0.32	140	130 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
2,6-Dinitrotoluene	U (130)	UHC Treatment Standard	UHC	0.55	28	130 mg/kg detection limit exceeds the nww treatment standard.
Fluoranthene	U (130)	UHC Treatment Standard	UHC	0.068	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Fluorene	U (130)	UHC Treatment Standard	UHC	0.059	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorobenzene	U (130)	0.13 (D032), UHC Treatment Standard	D032, UHC	0.055	10	130 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorobutadiene (Hexachloro-1,3-butadiene	U (130)	0.5 (D033)UHC Treatment Standard	D033, UHC	0.055	5.6	130 mg/kg detection limit exceeds the nww treatment standard.
Hexachlorocyclopentadiene	U (130)	UHC Treatment Standard	UHC	0.057	2.4	130 mg/kg detection limit exceeds the nww treatment standard.
Hexachloroethane	U (130)	UHC Treatment Standard	UHC	0.055	30	130 mg/kg detection limit exceeds the nww treatment standard.
Indeno (1,2,3-cd) pyrene	U (130)	UHC Treatment Standard	UHC	0.0055	3.4	130 mg/kg detection limit exceeds the nww treatment standard.
Isophorone	U (130)	None	NA	NA	NA	
2-Methylnaphthalene	110 J	None	NA	NA	NA	
2-Methylphenol (o-cresol)	**500**	**200 mg/L or UHC treatment standard**	**D023, UHC**	**0.11**	**5.6**	**500 mg/kg concentration exceeds the nww treatment standard. Using 500 mg/kg, the theoretical leachate value is 25 mg/L which is below the characterisitic limit.Therefore it is a UHC.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
4-Methylphenol (p-cresol)	**260**	**200 mg/L or UHC treatment standard**	**D025, UHC**	**0.77**	**5.6**	**260 mg/kg concentration exceeds the nww treatment standard. Using 260 mg/kg, the theoretical leachate value is 13 mg/L which is below the characterisitic limit.Therefore it is a UHC.**
Naphthalene	**44 J**	**UHC Treatment Standard**	**UHC**	**0.059**	**5.6**	**4 mg/kg concentration exceeds the nww treatment standard. Therefore it is a UHC.**
2-Nitroaniline (o-nitroaniline)	U (670)	UHC Treatment Standard	UHC	0.27	14	670 mg/kg detection limit exceeds the nww treatment standard.
3-Nitroaniline (m-nitroaniline)	U (670)	None	NA	NA	NA	
4-Nitroaniline (p-nitroaniline)	U (670)	UHC Treatment Standard	UHC	0.028	28	670 mg/kg detection limit exceeds the nww treatment standard.
Nitrobenzene	U (130)	2.0 (D036) or UHC Treatment Standard	D036 or UHC	0.068	14	130 mg/kg detection limit exceeds the nww treatment standard.
2-Nitrophenol (o-nitrophenol)	U (130)	UHC Treatment Standard	UHC	0.028	13	130 mg/kg detection limit exceeds the nww treatment standard.
4-Nitrophenol (p-nitrophenol)	U (670)	UHC Treatment Standard	UHC	0.12	29	670 mg/kg detection limit exceeds the nww treatment standard.
N-nitroso-dimethylamine	NA	UHC Treatment Standard	UHC	0.4	2.3	
N-nitroso-di-n-propylamine (Di-n-propylnitrosamine)	U (130)	UHC Treatment Standard	UHC	0.4	14	130 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

INEEL V-9 SVOC Analysis on Sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/l	LDR Treatment Standard for non-wastewater in mg/kg	Comments
N-nitrosodiphenylamine (Diphenylnitrosamine)	U (130)	UHC Treatment Standard	UHC	0.92	13	130 mg/kg detection limit exceeds the nww treatment standard.
Pentachlorophenol	U (670)	UHC Treatment Standard	UHC	0.089	7.4	670 mg/kg detection limit exceeds the nww treatment standard.
Phenanthrene	**21 J**	**UHC Treatment Standard**	**UHC**	**0.059**	**5.6**	**21 mg/kg concentration exceeds the nww treatment standard. Therefore it is a UHC.**
Phenol	**71 J**	**UHC Treatment Standard**	**UHC**	**0.039**	**6.2**	**71 mg/kg concentration exceeds the nww treatment standard. Therefore it is a UHC.**
Pyrene	U (130)	UHC Treatment Standard	UHC	0.067	8.2	130 mg/kg detection limit exceeds the nww treatment standard.
Pyridine	U (130)	5.0 (D038) or UHC Treatment Standard	D038 or UHC	0.014	16	130 mg/kg detection limit exceeds the nww treatment standard. Using 130 mg/kg, the theoretical leachate value is 6.5 mg/L which is above the characterisitic limit.
Tributylphosphate	NA	None	NA	NA	NA	
1,2,4-Trichlorobenzene	**32 J**	**UHC Treatment Standard**	**UHC**	**0.055**	**19**	**32 mg/kg concentration exceeds the nww treatment standard. Therefore this is a UHC.**
2,4,5-Trichorophenol	U (670)	44 (D041), UHC Treatment Standard	D041, UHC	0.18	7.4	670 mg/kg detection limit exceeds the nww treatment standard.
2,4,6-Trichlorophenol	U (130)	2 (D042), UHC Treatment Standard	D042, UHC	0.035	7.4	130 mg/kg detection limit exceeds the nww treatment standard.

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value

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INEEL V-9 Inorganic Analysis on sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aluminum	2290	NA	NA	NA	NA	
Antimony	22.2 B N	UHC Treatment Standard	UHC	1.9	1.15 mg/L TCLP	Using 22.2 mg/kg, the theoretical leachate value is 1.11 mg/L .
Arsenic	U (3.7)	5.0 (D004), UHC Treatment Standard	D004, UHC	1.4	5.0 mg/L TCLP	
Barium	**515**	**100 mg/l (D005), UHC Treatment Standard**	**D005, UHC**	**1.2**	**21 mg/L TCLP**	**Using 515 mg/kg, the theoretical leachate value is 25.8 mg/L which is above the nww treatment standard. Therefore, barium is a UHC.**
Beryllium	**25.7**	**UHC Treatment Standard**	**UHC**	**0.82**	**1.22 mg/L TCLP**	**Using 25.7 mg/kg, the theoretical leachate value is 1.29 mg/L which is above the nww treatment standard. Therefore, beryllium is a UHC.**
Boron	47.3	NA	NA	NA	NA	
Cadmium	**30.9**	**1.0 (D006), UHC**	**D006, UHC**	**0.69**	**0.11 mg/L TCLP**	**Using 30.9 mg/kg, the theoretical leachate value is 1.55 mg/L which is above the characteristic limit.**
Calcium	5660	NA	NA	NA	NA	
Chromium	**1100**	**5 (D007), UHC Treatment Standards**	**D007, UHC**	**2.77**	**0.60 mg/L TCLP**	**Using 1100 mg/kg, the theoretical leachate value is 55 mg/L which is above the characteristic limit.**
Cobalt	5.8	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

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INEEL V-9 Inorganic Analysis on sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Constituents	**Concentration mg/L**	**Applicable Regulatory Limit**	**Applicable RCRA Waste Code**	**LDR Treatment Standard for wastewater in mg/l**	**LDR Treatment Standard for non-wastewater in mg/kg**	**Comments**
Copper	43.1	NA	NA	NA	NA	
Iron	9710	NA	NA	NA	NA	
Lead	**592 N**	**5.0 (D008), UHC Treatment Standard**	**D008, UHC**	**0.69**	**0.75 mg/L TCLP**	**Using 592 mg/kg, the theoretical leachate value is 29.6 mg/L which is above the characteristic limit.**
Magnesium	1670	NA	NA	NA	NA	
Manganese	825	NA	NA	NA	NA	
Mercury	**2110**	**0.2 (D009), UHC Treatment Standard**	**D009, UHC**	**0.15**	**0.025 mg/L TCLP**	**Using 2110 mg/kg, the theoretical leachate value is 105.5 mg/L which is above the characteristic limit. Note: Treatment may require IMERC or RMERC since concentration exceeds 260 mg/kg. Verify first if waste would fail TCLP.**

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

INEEL V-9 Inorganic Analysis on sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Nickel	**435**	**UHC Treatment Standard**	**UHC**	**3.98**	**11 mg/L TCLP**	**Using 435 mg/kg, the theoretical leachate value is 21.8 mg/L which is above the nww treatment standard limt. This is a UHC.**
Potassium	10300	NA	NA	NA	NA	
Selenium	U (4.1) N	1 (D010)	D010	0.82	5.7 mg/L TCLP	
Silicon	292 N	NA	NA	NA	NA	
Silver	**657**	**5 (D011), UHC Treatment Standard**	**D011, UHC**	**0.43**	**0.14 mg/L TCLP**	**Using 657 mg/kg, the theoretical leachate value is 32.9 mg/L which is above the characteristic limit.**
Sodium	1950 E	NA	NA	NA	NA	
Thallium	**7.8 B**	**UHC Treatment Standard**	**UHC**	**1.4**	**0.2 mg/L TCLP**	**Using 7.8 mg/kg, the theoretical leachate value is 0.39 mg/L which is above the nww treatment standard limt. This is a UHC.**
Tin	33.4	NA	NA	NA	NA	
Vanadium	6.8	NA	NA	NA	NA	
Zinc	1790	NA	NA	NA	NA	

U = Not Detected (Detection limit in parenthesis).
J = Estimated Value
B = Reported value is > to instrument detection limit but < contract required detection limit.
N = Spiked Sample
E = Estimate value due to interference.

INEEL V-9 PCB Analysis on sludge.

Constituents	Concentration mg/kg	Applicable Regulatory Limit	Applicable TSCA/RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Aroclor-1016	U (24)		None	NA	NA	
Aroclor-1221	U (47)	NA	NA	NA	NA	
Aroclor-1232	U (24)	NA	NA	NA	NA	
Aroclor-1242	U (24)	NA	NA	NA	NA	
Aroclor-1248	U (24)	NA	NA	NA	NA	
Aroclor-1254	U (24)	NA	NA	NA	NA	
Aroclor-1260	310 P	NA	NA	NA	NA	
Total Concentration	310 P	50 mg/kg for TSCA, UHC Treatment Standard for RCRA	None	0.1	10	This waste is regulated under TSCA and it may be subject to the UHC treatment standard level. Therefore, this waste must be incinerated prior to disposal for purposes of PCBs.

U = Not Detected (Detection limit in parenthesis).
P = > 25% difference in detected concentration between two GC columns; lower value reported.

INEEL V-9 Miscellaneous Analysis on sludge.

Constituents	Concentration mg/L	Applicable Regulatory Limit	Applicable RCRA Waste Code	LDR Treatment Standard for wastewater in mg/L	LDR Treatment Standard for non-wastewater in mg/kg	Comments
Bromide	12.3	None	NA	NA	NA	
Chloride	503	None	NA	NA	NA	
Fluoride	7.41	None	NA	NA	NA	
Nitrate	36.7	None	NA	NA	NA	
Nitrite	7.11	None	NA	NA	NA	
Phosphate	1.09 B	None	NA	NA	NA	
Sulfate	45.3	None	NA	NA	NA	
Total Organic Carbon	12924.7 mg/kg	< 1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
Total Halides	NP	NA	NA	NA	NA	
Total Suspended Solids	NA	<1%	NA	NA	NA	Wastewater is defined as < 1% TOC and < 1% TSS.
pH	7.7	≤ 2 or ≥ 12.5	None	NA	NA	
% Water	67.5					

U = Not Detected (Detection limit in parenthesis).
B = Not defined in INEEL.
NP = Analysis not performed.
TOC = 12924.7 mg/kg = 1.29 %, which is > 1%. This sludge is considered a non-wastewater.